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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,924	03/10/2004	Hiroshi Kimura	FUJI:298	3355

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EXAMINER	
CANNING, ANTHONY J	
ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/797,924	KIMURA ET AL.	
	Examiner	Art Unit	
	Anthony J. Canning	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Acknowledgement of Amendment

1. The amendment to the instant application was received and entered on 24 June 2005. The examiner acknowledges amendments to claims 1 and 12, and newly added claims 17 and 18.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 17 and 18 rejected under 35 U.S.C. 102(b) as being anticipated by Utsugi (U.S. 5,837.391).

4. As to claim 17, Utsugi discloses an organic light-emitting device comprising a substrate (see Fig. 2, item 10; column 2, lines 1-2), and a layered body that contains, in order, a reflecting electrode (see Fig. 2, item 13b; column 1, lines 17-19, Mg-Ag is reflective), a first organic EL layer that emits light of a first color (see Fig. 2, item 13; column 2, lines 21-24), a first transparent electrode (see Fig. 2, item 13a; column 2, lines 21-22), a second organic EL layer that emits light of a second color different than the first color (see Fig. 2, item 12; column 2, lines 13-20), and a second transparent electrode (see Fig. 2, item 12b; column 2, lines 13-14), said substrate and said reflecting electrode being in contact with one another (the reflecting electrode is in contact to the substrate via the power source and the other layers of the EL

element), wherein the polarity of said reflecting electrode and said second transparent electrode are the same, and the polarity of the first transparent electrode is opposite to the polarity of the reflecting electrode an the second transparent electrode (as seen in figure 2, one electrode of the power source is connected to the reflective electrode, item 13b, and the second transparent electrode 11b; the bottom transparent electrode, which is the first transparent electrode is connected to the other electrode of the power source).

5. As to claim 18, Utsugi discloses an organic light-emitting device including a substrate (see Fig. 2, item 10; column 2, lines 1-2), and a layered body that contains, in order, a reflecting electrode (see Fig. 2, item 13b; column 1, lines 17-19, Mg-Ag is reflective), a first organic EL layer that emits light of a first color (see Fig. 2, item 13; column 2, lines 21-24), a first transparent electrode (see Fig. 2, item 13a; column 2, lines 21-22), a second organic EL layer that emits light of a second color different than the first color (see Fig. 2, item 12; column 2, lines 13-20), and a second transparent electrode (see Fig. 2, item 12b; column 2, lines 13-14), said substrate and said reflecting electrode being in contact with one another (the reflecting electrode is in contact to the substrate via the power source and the other layers of the EL element), wherein the polarity of the reflecting electrode and the second transparent electrode are the same, and the polarity of the first transparent electrode is opposite to the polarity of the reflecting electrode and the second transparent (as seen in figure 2, one electrode of the power source is connected to the reflective electrode, item 13b, and the second transparent electrode 11b; the bottom transparent electrode, which is the first transparent electrode is connected to the other electrode of the power source).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-6, 8, 9, and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burrows et al. (U.S. 6,048,630) in view of Utsugi (U.S. 5,837,391).

8. Regarding claim 1, Burrows et al. disclose an organic light-emitting device (column 1, lines 12-13) including a substrate (see Fig. 17, item 40; column 16, line 2; column 14, line 32), and a layered body that contains (see Fig. 17), in order, a reflecting electrode (see Fig. 17, item 80; column 16, lines 29-31), a first organic EL layer that emits light of a first color (see Fig. 17, item 70; column 16, lines 24-29), a first transparent electrode (see Fig. 17, item 112; column 16, lines 16-20), a second organic EL layer that emits light of a second color different than the first color (see Fig. 17, item 100; column 16, lines 6-8), and a second transparent electrode (see Fig.

17, item 50; column 16, lines 1-3). Burrows et al. fail to disclose that the reflecting electrode and the second transparent electrode being connected to the first electrode of the power source, and the first transparent electrode is connected to the second electrode of the power source.

Utsugi disclose an organic light-emitting device where the reflecting electrode and the second electrode transparent electrode are connected to the first electrode of the power source (see Fig. 2; items 13b, 11b, 11a; column 1, lines 17-19, the Mg-Ag cathode is reflective which is 13b; column 2, lines 1-34; as seen in figure 2, one electrode of the power source is connected to the reflective electrode, item 13b, and the second transparent electrode 11b; the bottom transparent electrode, which is the first transparent electrode is connected to the other electrode of the power source). Utsugi further discloses that when a driving potential is applied between the anodes 11a-13a and the cathodes 11b-13b, the electrons are recombined with the holes at the boundaries between the hole transporting layers 11c to 13c and the electron transporting layers 11d to 13d, and blue light, green light, and red light are emitted from the boundaries (column 2, lines 29-34).

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the organic light-emitting device of Burrows et al. to include that that the reflecting electrode and the second transparent electrode being connected to the first electrode of the power source, and the first transparent electrode is connected to the second electrode of the power source, as taught by Utsugi, to have electron-hole recombination and allow the emission of light.

9. Regarding claim 12, Burrows et al. disclose an organic light-emitting device (column 1, lines 12-13) including a substrate (see Fig. 17, item 40; column 16, line 2; column 14, line 32), a

reflecting electrode (see Fig. 17, item 80; column 16, lines 29-31), and a plurality of layers (see Fig. 17) including organic EL layers (see Fig. 17, items 70 and 100; column 16, lines 24-29; column 16, lines 6-8) and transparent electrodes (see Fig. 17, items 50 and 112; column 16, lines 1-3; column 16, lines 16-20) formed alternately on the reflecting electrode (see Fig. 17), wherein the reflecting electrode is in contact with one of the organic EL layers (see Fig. 17, items 70 and 80), each of the organic EL layers emits light of a different color (column 15, lines 65-67; column 16, lines 6-8; column 16, lines 24-29). Burrows et al. fail to disclose that the even numbered electrodes, counting from the reflecting electrode, and the reflecting electrode are connected to one electrode with a particular polarity, and the odd numbered electrodes counting from the reflecting electrode are connected to another electrode of opposite polarity.

10. Regarding claim 2, Burrows et al. disclose the organic light-emitting device according to claim 1, which emits white light (column 2, lines 52-54).

11. Regarding claims 3 and 13, Burrows et al. disclose the organic light-emitting device according to claims 1 and 12. Burrows et al. fail to disclose that the substrate and the reflecting electrode are in contact with one another.

Utsugi disclose an organic light-emitting device wherein the substrate and the reflecting electrode are in contact with one another (see Fig. 2, items 13b, 11a, and 10; column 1, lines 17-19; Mg-Ag is a reflective material; (the reflecting electrode is in contact to the substrate via the power source and the other layers of the EL element). Having the reflective electrode in electrical contact with the substrate closes the circuit of the EL display with the power source.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the organic light-emitting device of Burrows et al. to include

disclose that the substrate and the reflecting electrode are in contact with one another, as taught by Utsugi, to close the circuit of the EL display with the external power source.

12. Regarding claim 4, Burrows et al. disclose the organic light-emitting device according to claim 1, wherein the substrate (see Fig. 17, item 40; column 16, line 2; column 14, line 32) and the second transparent electrode (see Fig. 17, item 50; column 16, lines 1-3) are in contact with one another, and the substrate is a transparent substrate (see Fig. 17, items 40 and 50; column 16, lines 1-3).

13. Regarding claims 5 and 6, Burrows et al. disclose the organic light-emitting device according to claim 1. Regarding the limitation of electrode polarity, being anodes or cathodes, the polarity of electrodes is a method of operating and not germane to the structure.

14. Regarding claim 8, Burrows et al. disclose the organic light-emitting device according to claim 1, additionally including a light-blocking layer (see Fig. 17, item 108; column 16, lines 22-24) between the first transparent electrode and the second organic EL layer (see Fig. 17, items 112 and 100).

15. Regarding claim 9, Burrows et al. disclose the organic light-emitting device according to claim 1. Burrows et al. fail to disclose a transparent insulating layer between the first transparent electrode and the second organic EL layer.

Utsugi discloses an organic light-emitting device with a transparent insulating layer (see Fig. 2, item 14b; column 3, lines 7-8) between the first transparent electrode (see Fig. 2, item 13a; column 3, lines 6-7) and the second organic EL layer (see Fig. 2, item 12; column 2, lines 1-4). Insulating layers add in keeping voltage in one luminescent layer from leaking into an adjacent one.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the organic light-emitting device of Burrows et al. to include disclose a transparent insulating layer between the first transparent electrode and the second organic EL layer for the added benefit of keeping voltage in one luminescent layer from leaking into an adjacent one.

16. Regarding claim 14, Burrows et al. disclose the organic light-emitting device according to claim 12, wherein the substrate, and the one of the transparent electrodes furthest from the reflecting electrode are in contact with one another (see Fig. 17, items 40, 50, and 80; column 16, lines 1-3; column 16, lines 29-31), and the substrate is a transparent substrate (column 16, lines 1-3).

Utsugi disclose an organic light-emitting device where the reflecting electrode and the second electrode transparent electrode are connected to the first electrode of the power source (see Fig. 2; items 13b, 11b, 11a; column 1, lines 17-19, the Mg-Ag cathode is reflective which is 13b; column 2, lines 1-34; as seen in figure 2, one electrode is connected to the reflective electrode, item 13b, and the second transparent electrode 11b; the bottom transparent electrode, which is the first transparent electrode is connected to the other electrode of the power source). Utsugi further discloses that when a driving potential is applied between the anodes 11a-13a and the cathodes 11b-13b, the electrons are recombined with the holes at the boundaries between the hole transporting layers 11c to 13c and the electron transporting layers 11d to 13d, and blue light, green light, and red light are emitted from the boundaries (column 2, lines 29-34). The power source in figure 2 is not labeled, and is where the lines extending to the anodes and cathodes are

connected to, this is the notation of an outside power source, the shorter line represents an electrode of one polarity, and the larger line an electrode of the opposite polarity.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the organic light-emitting device of Burrows et al. to include that that the reflecting electrode and the second transparent electrode being connected to the first electrode of the power source, and the first transparent electrode is connected to the second electrode of the power source, as taught by Utsugi, to have electron-hole recombination and allow the emission of light.

17. Regarding claim 15, Burrows et al. disclose the organic light-emitting device according to claim 12, additionally including a light-blocking layer (see Fig. 17, item 108; column 16, lines 22-24) between one of the transparent electrodes and one of the organic EL layers in contact therewith (see Fig. 17, items 112 and 70).

18. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burrows et al. (U.S. 6,048,630) in view of Utsugi (U.S. 5,837,391) and further in view of Inoguchi et al. (U.S. 5,932,327).

19. Regarding claim 7, Burrows et al. disclose the organic light-emitting device according to claim 1. Burrows et al. fail to disclose that one of the first organic EL layer and the second organic EL layer emits blue/green light, and the other emits yellow light.

Inoguchi et al. disclose an electroluminescent element with a yellow light emitting and a blue/green light-emitting layer (column 1, lines 24-32). Inoguchi et al. further disclose that this

combination of color layers can be used along with color filters to allow emission of multi-colored light (column 1, lines 30-32).

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the organic light-emitting device of Burrows et al. to include a first organic EL layer and a second organic EL layer emits blue/green light, and the other emits yellow light to allow for emission of multi-colored light.

20. Claim 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burrows et al. (U.S. 6,048,630) in view of Utsugi (U.S. 5,837,391) and further in view of Shen et al. (U.S. 6,232,714 B1).

21. Regarding claim 16, Burrows et al. disclose the organic light-emitting device according to claim 12. Burrows et al. fail to additionally disclose a transparent insulating layer between one of the transparent electrodes and one of the organic EL layers in contact therewith.

Shen et al. disclose an organic light-emitting device with a transparent insulating layer (see Fig. 8, item 214; column 13, lines 18-19) between one of the transparent electrodes (see Fig. 8, item 209b; Table 1, item 209b) and one of the organic EL layers in contact therewith (see Fig. 8, item 221; column 3, line 21). Shen et al. further disclose that the insulating layer can be used to shift the positions of the light source within the optical cavity defined by the second electrode (column 13, lines 18-21).

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the organic light-emitting device of Burrows et al. to include a transparent insulating layer between one of the transparent electrodes and one of the organic

EL layers in contact therewith for the added benefit that the insulating layer can be used to shift the positions of the light source within the optical cavity defined by the second electrode.

22. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burrows et al. (U.S. 6,048,630) in view of Utsugi (U.S. 5,837,391) and further in view of Forrest et al. (U.S. 5,707,745).

23. Regarding claim 10, Burrows et al. disclose the organic light-emitting device according to claim 1. Burrows et al. fail to additionally disclose a third organic EL layer that contacts the second transparent electrode, and a third transparent electrode that contacts the third organic EL layer, wherein the third organic EL layer emits light of a color different than both the first color and the second color.

Utsugi disclose an organic light-emitting device including a third organic EL layer (see Fig. 2A, items 20H, 20E, and 20T; column 4, lines 20-26) that contacts the second transparent electrode (see Fig. 2A, item 26 adjacent item 20T), and a third transparent electrode that contacts the third organic EL layer (see Fig. 2A, item 35; column 4, lines 20-22), wherein the third organic EL layer emits light of a color different than both the first color and the second color (column 6, lines 28-30). A tricolor display will produce a wider range of light in the visible spectrum by mixing the three colors at various intensities.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the organic light-emitting device of Burrows et al. to include a third organic EL layer that contacts the second transparent electrode, and a third transparent electrode that contacts the third organic EL layer, wherein the third organic EL layer emits light

of a color different than both the first color and the second color for the added benefit of a wider range of light in the visible spectrum by mixing the three colors at various intensities.

24. Regarding claim 11, Burrows et al. and Forrest et al. disclose the organic light-emitting device according to claim 10. Forrest et al. further disclose that one of the first organic EL layer, the second organic EL layer and the third organic EL layer emits blue light (see Fig. 2A, item 20E; column 1, lines 35-36), one emits green light (see Fig. 2A, item 21E; column 1, lines 35-36), and one emits red light (see Fig. 2A, item 22E; column 1, lines 35-36). A tricolor display will produce a wider range of light in the visible spectrum by mixing the three colors at various intensities.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the organic light-emitting device of Burrows et al. to include a third organic EL layer that contacts the second transparent electrode, and a third transparent electrode that contacts the third organic EL layer, wherein the third organic EL layer emits light of a color different than both the first color and the second color for the added benefit of a wider range of light in the visible spectrum by mixing the three colors at various intensities.

Response to Arguments

25. In light of the amendment of claims 1 and 12, the examiner has given a new rejection, see above.

26. Regarding claim 7, Burrows et al. in view of Utsugi disclose the polarity as claims, and Inoguchi et al. disclose the yellow light as claimed in claim 7.

27. Regarding claim 9, Utsugi does disclose an insulating layer between the first and second transparent electrodes with the external power source having an electrode of one polarity connected to the reflecting electrode and the second transparent electrode, and the first transparent electrode is connected to the second electrode of the external power source, which has a polarity that is opposite to the first electrode of the power source, see rejection.

28. Regarding claim 16, the new rejection of claim 1 overcomes the claim of the reflecting electrode and the second transparent electrode of the EL device being connected to an electrode of a power source with one polarity and the first electrode of the EL device being connected to another electrode of an opposite polarity of the external power source.

29. Regarding claims 10 and 11, Forrest et al. provides the use of a third EL layer not a biasing of the electrodes. Therefore, in combination with Burrows et al. the reference overcomes the claimed invention.

Final Rejection

30. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Canning whose telephone number is (571)-272-2486. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D. Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony Canning

22 August 2005

ASHOK PATEL
PRIMARY EXAMINER